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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,430	04/25/2006	Simon Cote	1032256-000033	6929
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EXAMINER				
KAHN, RACHEL				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary

Application No.

10/567,430

Applicant(s)

COTE, SIMON

Examiner

RACHEL KAHN

Art Unit

4131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 16-23, 31-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 24-30 is/are rejected.
- 7) ☒ Claim(s) 11 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/25/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-15 and 24-30 in the reply filed on 12/22/2008 is acknowledged.

Claims 16-23 and 31-52 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 12/22/08.

Claim Objections

Claim 11 is objected to because of the following informalities: The claim recites "an methacrylamide" where it should recite "a methacrylamide." Appropriate correction is required.

Claim 27 is objected to because of the following informalities: The word "out" was omitted from between "carrying said." Appropriate correction is required.

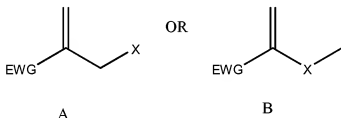
Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3, 4, 6-8, 11, 13, 24, 25, 29 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 13 and 24 contains the term (α -X-methyl) vinyl-EWG (or ERG etc...). This term is not commonly used in the art, and the structure implied is unclear. For example, two possible structures are envisaged below (using the example with EWG):



If applicants intended the structure shown as "A" above, it is unclear how X could be oxygen or sulfur alone (ie, without hydrogen).

Furthermore, when X is O or S, it is unclear how polymerization of the implied monomer would result in a polyether.

In addition, in claim 1, group a, the term (α -X-methyl) vinyl-EWG stands alone as a complete compound. However, in claim 1, group b, and in claim 13, the term appears to refer to a fragment or group.

In part b) of claims 1 and 24, it is unclear whether the phrase directly following "cross-linker" is intended to modify the monomer or the cross-linker.

Claims 8 and 25 depend from claims 1 and 24, however, due to the clarity issues surrounding claims 1 and 24, it is unclear whether claim 8 further modifies claim 1 (or

whether claim 25 further modifies claim 24). Group "A" in claims 8 and 25 appears to correspond to the group "X" in claims 1 and 24. Claims 8 and 25, however, list more options for the identity of group "A" than claims 1 and 24 list for the identity of group "X." Correction may be required.

Furthermore, in claim 8, it is unclear how a polyether would be formed if the group chosen to be "A" is anything other than PEG, PPG or poly (THF).

Claim 11 recites the phrase "having at least an acrylamide..." It is unclear whether this phrase is intended to modify just the "secondary cross-linker" or whether it is intended to modify the PEG, PPG and poly(THF) as well.

Claims 13 and 25 (part iv) recite the limitation "derivatives." There is insufficient antecedent basis for this limitation in the claim. "Derivatives" were not previously defined and the intended role of the "derivatives" is unclear. Furthermore, the use of the two semi-colons in claims 13 and 25 is not standard and is confusing. It is unclear what the last phrase (following the second semi-colon) refers to, or what it is intended to mean.

In claim 25, it is not clear whether the polymerizable monomer is to be reacted with one compound from each of groups i through v (for a total of 6 compounds reacted together), or if only one compound must be selected which meets the limitations of any of the groups (for a total of 2 compounds reacted together). For the purposes of

examination, the "or" at the end of group iv will be interpreted to indicate that only one compound must be selected from any of the groups.

Claims 29 and 30 recite "said acrylamide or methacrylamide...", however, neither claims 24 or 25, from which the claims depend, require acrylamides or methacrylamides, as these compounds are presented as two out of many choices.

Claim 30 recites the limitation "said acrylamide or methacrylamide crosslinker" in claim 25. Claim 25 refers to such crosslinkers in both groups ii and iv. There is insufficient antecedent basis for this limitation in the claim, as it is not clear to which group claim 30 refers.

Claims 3, 4, 6, and 7 recite percentages, however, they lack units, i.e. mol or weight %. Clarification requested.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8-11, 14, 15, 24-27 rejected under 35 U.S.C. 102(b) as being anticipated by Asai et al (WO 0183636). The English Language version, US 2003/0114546, will be cited in this action.

Asai discloses a bifunctional crosslinkable monomer wherein two polymerizable carbon-carbon double bonds are linked together via a polyethylene glycol or polypropylene glycol [0060]. As an example, Asai discloses polyethylene glycol di(meth)acrylate [0066], which fits the structure implied by instant claim 10 (when D is PEG). This bifunctional crosslinkable monomer is polymerized with a polymerizable monomer, which Asai teaches can be methacrylonitrile [0115].

Methacrylonitrile fits the limitations of instant claim 8 if A is H and B is nitrile (an EWG).

Regarding claim 2, Asai teaches that the crosslinkable monomer is copolymerized with a polymerizable monomer [0103], which can be styrene [0115].

Regarding claim 3, Asai teaches that the crosslinkable monomer is present in an amount of 1-5% by weight based on the polymerizable monomer [0103].

Claims 14 and 15 contain product by process limitations. Asai discloses a crosslinked polyether that appears to be the same as the product set forth in a product-by-process claim even if it was produced by a different process. See above rejections for the description of the polyether. See **In re Marosi**, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and **In re Thorpe**, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113.

Regarding claim 25, Asai does not expressly teach chemical modification of the polyether product, however, when using polyethyleneglycol dimethacrylate, the polyether is already ester functionalized.

Regarding claim 26, Asai teaches suspension polymerization [0004].

Regarding claim 27, Asai teaches both styrenes and acrylonitriles, and teaches that combinations of monomers can be used [0115].

Claims 1, 5-15, 24-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Cote (WO02/40559). The US Patent version US 7235297 will be cited in this office action.

Cote discloses a crosslinked polyether obtained by polymerization involving methacrylic acid (column 5, lines 63-67). Methacrylic acid meets the recitations of claims 1 and 24, group b, as methacrylic acid is polymerizable with a PEG, PPG or poly(THF) crosslinker. Methacrylic acid also meets the structure shown in instant claims 8 and 25, when A is H.

Regarding instant claims 5-7, Cote teaches that the polymerizable monomer can be reacted with divinylbenzene (column 5, line 55). While Cote does not teach an anticipatory example using divinylbenzene, example 1 shows that the polymerizable monomer comprises 66 mol%, while the crosslinker component comprises 33% (column 8, lines 35-40).

Regarding instant claims 9-11, Cote teaches that the monomer is copolymerized with a PEG or PPG based crosslinker (column 4, lines 58-60) with vinyl end groups.

The formula shown in column 4, lines 60-67, fulfills the limitations of the formula shown in instant claim 10.

Regarding instant claim 12, Cote teaches a tertiary crosslinker that meets the recited structure (column 5, lines 15-20). Regarding instant claim 13, the tertiary crosslinker can be considered "star-shaped."

Claims 14 and 15 contain product by process limitations. Cote discloses a crosslinked polyether that appears to be the same as the product set forth in a product-by-process claim even if it was produced by a different process. See above rejections for the description of the polyether. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113.

Regarding instant claim 25, part b, and claims 28-30, Cote teaches that the polyether can be chemically modified with several types of groups, including amino, ester and aryl. Applicants note that groups capable of anchoring linkers include amino and phenyl groups [0156].

Regarding instant claim 26, Cote teaches suspension radical copolymerization (column 7, lines 17-18).

Regarding instant claim 27, Cote discloses mixtures of polymerizable monomers by teaching "at least one" and "mixtures thereof." (column 5, lines 44-46).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote (WO02/40559). The US Patent version US 7235297 will be cited in this office action.

Cote fails to teach that styrene is present in the inventive examples. However, in the background section of the specification, Cote teaches numerous examples where styrene is copolymerized in polyethers. For example, Cote teaches that polystyrene-polyethylene copolymer named Tentagel offers a good compromise between the mechanical properties of polystyrene and desired amphiphile behavior with good swelling (column 1, lines 40-52). Cote also cites work done where poly(THF) is copolymerized with styrene to give impressive swelling properties (column 3, lines 29-35). Given the examples cited by Cote showing the benefits which can be obtained by having styrene units present in a polyether, it would have been obvious to one of ordinary skill in the art to use styrene in the polyether taught by Cote.

Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote (WO02/40559). The US Patent version US 7235297 will be cited in this office action.

While 29 and 30 are worded such that acrylamide or methacrylamide compounds are not required in the claim (see 112 rej above), it would have been obvious to one of ordinary skill to use acrylamide or methacrylamide compounds in view of Cote's disclosure. Cote fails to teach an inventive example using acrylamide, however, Cote teaches that PEG or PPG crosslinkers bearing acrylamide moieties can be copolymerized with other methacrylic acid derivatives. The amide bonds in the polyether network are then useful for solid phase peptidic synthesis (column 1 line 65 to column 2 line 5). It would have been obvious, therefore, to use acrylamide or methacrylamide based monomers and crosslinkers in view of Cote's teaching that the amide bonds impart additional, advantageous, functionality to the polymer.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RACHEL KAHN whose telephone number is (571)270-7346. The examiner can normally be reached on Monday to Friday 8:00 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RACHEL KAHN/
Examiner, Art Unit 4131

/David R. Sample/
Supervisory Patent Examiner, Art Unit 4131

RK